

Range extension of the Inland Thornbill *Acanthiza apicalis* into the wet-dry tropics

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Small foliage-gleaning insectivorous birds are a marked feature of most Australian environments. Almost all vegetation types in Australia's wet tropics, temperate and arid zones support several species of thornbills (*Acanthiza* spp.), typically foraging on the ground, shrub layer or tree canopy, and often at higher densities than for any other bird species present (e.g. Keast 1985, Woinarski 1985). Most forest and woodland habitats in temperate and arid Australia also support two species of pardalotes (*Pardalotus* spp.), typically foraging on invertebrates in the tree canopy; and scrub-wrens (*Sericornis*, *Hylacola* and *Calamanthus* spp.) which occupy the shrub and/or ground layer. The guild also includes the Weebill (*Smicrornis brevirostris*), which occurs across almost all woodland types, and a set of Gerygones (*Gerygone* spp.) typically at low densities in woodlands, or with different species at higher densities in non-eucalypt forests (such as mangroves and rainforests).

The woodlands and open forests of the wet-dry tropics of northern Australia are exceptional in their remarkably low diversity of such foliage-gleaning insectivorous birds (Keast 1985, Woinarski & Tidemann 1991). Across vast areas, and a broad range of habitats, this group comprises only the Striated Pardalote (*Pardalotus striatus*) and the Weebill, with occasional White-throated or Western Gerygones (*Gerygone olivacea* and *G. fusca* respectively). The low diversity of small foliage-gleaning birds in woodlands and open forests of the seasonal tropics may be due to:

- a relatively simple vegetation structure, notably with generally poor development of the tall shrubby understorey favoured by at least some thornbills and scrub-wrens elsewhere in Australia. This simple forest structure may be largely due to the high frequency of extensive fires;
 - the extreme climatic seasonality, which causes very marked fluctuations in invertebrate resources (Woinarski & Tidemann 1991, Churchill 1994). Many insectivorous reptiles and mammals in the region are known to undergo major shifts in behaviour in response to this seasonality (e.g. Christian & Bedford 1995). This flexibility may not be an option for foliage-gleaning birds;
 - a relatively high diversity and density of small generalist (and often aggressive)
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honeyeaters, which are insectivorous for at least part of the year but which exploit the relatively high nectar resources available during the period when insects are least abundant;

- a turbulent climatic history for the region over the last 20,000 years, which may have scuttled any equilibrium between resources and relatively specialist species. This may have been exacerbated by some spatial barriers which have prevented re-entry to the northern woodlands. The most notable of these are the extensive tussock grasslands of the Barkly Tablelands, which separate semi-arid woodlands (supporting several thornbill species) from woodlands of the seasonal tropics (supporting no thornbills).

Some environments in the seasonal tropics of northern Australia appear to be structurally comparable to those in arid and temperate Australia which support far more species of foliage-gleaning birds. One example is the Lancewood (*Acacia shirleyi*) woodlands extending over large areas of the Victoria River District, Sturt Plateau and Gulf regions of the Northern Territory, which bear remarkable resemblance in vegetation structure to Mulga (*Acacia aneura*) and Gidgee (*A. georginae*) woodlands of more arid areas. The latter typically have several species of thornbills at high densities (Woinarski & Fisher 1995b, Recher & Davis 1997), whereas no thornbills were reported in an extensive survey of Lancewood by Woinarski & Fisher (1995a).

Here I note the first two reported cases of thornbills from woodlands in the seasonal tropics of the Northern Territory. On June 14 1996, I saw three Inland Thornbills (*Acanthiza apicalis*) foraging on the foliage of Lancewood in a dense stand of Lancewood and Bullwaddy (*Macropternanthes kekwickii*) adjacent to the Buchanan Highway on Murrarji Station (16°42'S 132°32'E). On 24 October 1999, I saw three Inland Thornbills in a dense thicket of Lancewood with Bullwaddy understorey at Hayfield Station (16°47'S 133°39'E). Inland Thornbills have a very broad geographic and ecological distribution in semi-arid and arid Australia (indeed, as a superspecies with the Brown Thornbill (*A. pusilla*), this taxon has one of the most extraordinary habitat breadths of any Australian bird). The species is relatively common in the Tanami Desert (Gibson 1986), whose northern fringe abuts the Lancewood stands in the area of the first record above. These records extend the range of the species about 200 km beyond its previously most northerly records (Fig. 1), which were listed by Storr (1977) as Tanami (19°58'S) and Powell Creek (18°05'S).

Rather than providing incisive evidence for any of the explanations listed above for the low diversity of foliage-gleaning birds in the seasonal tropics, these records add to the intrigue. If Inland Thornbills can live in Lancewood woodlands here, why don't they occur in this environment more widely in the Top End? Given their well-documented habitat flexibility, why don't they occur in other environments in this region?

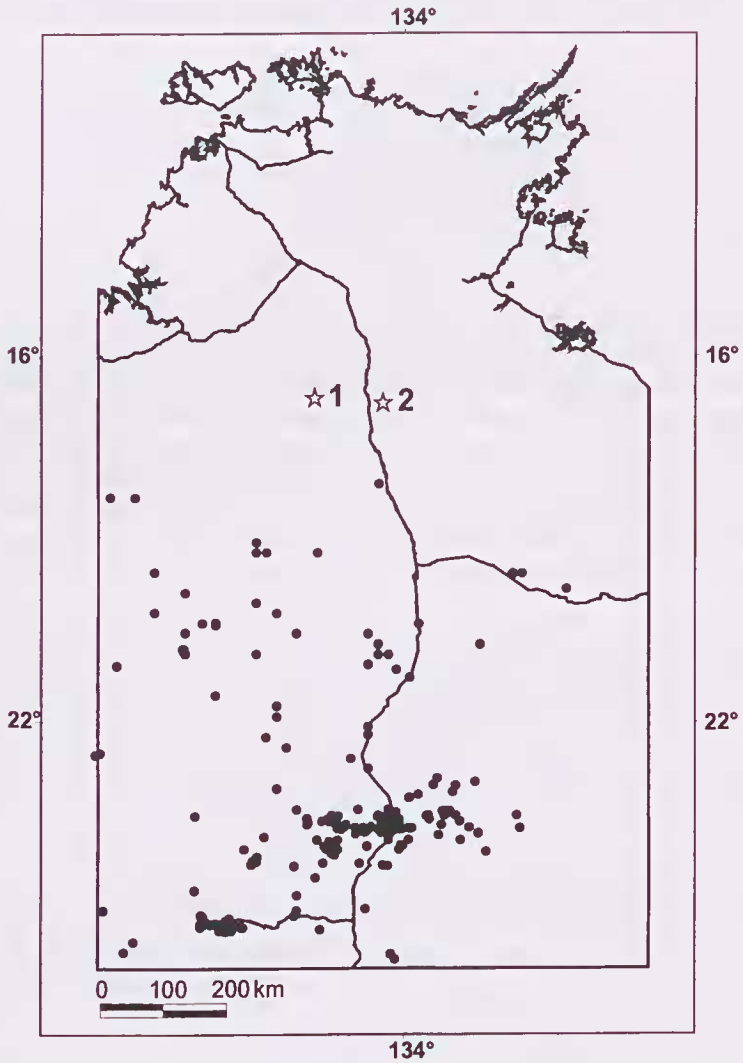


Figure 1. Location of records of Inland Thornbill from Murrnji Stn (1) and Hayfield Stn (2). Small dots are previous records of the species from the Northern Territory (PWCNT Fauna Database).

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References

- Christian K.A. and Bedford G.S. (1995) Seasonal changes in thermoregulation by the frillneck lizard, *Chlamydosaurus kingii*, in the wet-dry tropics of Australia. *Ecology* 76, 124-132.
- Churchill S.K. (1994) Diet, prey selection and foraging behaviour of the orange horseshoe-bat, *Rhinonycteris aurantius*. *Wildlife Research* 21, 115-130.
- Gibson D.F. (1986) *A biological survey of the Tanami Desert in the Northern Territory*. Technical Report No. 30, Conservation Commission of the Northern Territory, Alice Springs.
- Keast A.J. (1985) Bird community structure in southern forests and northern woodlands: a comparison. In *Birds of eucalypt forests and woodlands: ecology, conservation, management* (eds A. Keast, H.F. Recher, H. Ford and D. Saunders), pp. 97-116. Surrey Beatty, Sydney.
- Recher H.F. and Davis W.E. (1997) Foraging ecology of a mulga bird community. *Wildlife Research* 24, 27-44.
- Storr G.M. (1977) *Birds of the Northern Territory*. Special Publication No. 7, Western Australian Museum, Perth.
- Woinarski J.C.Z. (1985) Foliage-gleaners of the treetops, the pardalotes. In *Birds of eucalypt forests and woodlands: ecology, conservation, management* (eds A. Keast, H.F. Recher, H. Ford and D. Saunders), pp. 167-175. Surrey Beatty, Sydney.
- Woinarski J.C.Z. and Fisher A. (1995a) Wildlife of Lancewood (*Acacia shirleyi*) thickets and woodlands in northern Australia: 1. Variation in vertebrate species composition across the environmental range occupied by lancewood vegetation in the Northern Territory. *Wildlife Research* 22, 379-411.
- Woinarski J.C.Z. and Fisher A. (1995b) Wildlife of Lancewood (*Acacia shirleyi*) thickets and woodlands in northern Australia: 2. Comparisons with other environments of the region (Acacia woodlands, Eucalyptus savanna woodlands and monsoon rainforests). *Wildlife Research* 22, 413-443.
- Woinarski J.C.Z. and Tidemann S.C. (1991) The bird fauna of a deciduous woodland in the wet-dry tropics of northern Australia. *Wildlife Research* 18, 479-500.
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